

COMPOUND SEMICONDUCTOR CRYSTAL AND MANUFACTURE THEREOF

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Abstract

PURPOSE: To facilitate electrical isolation between elements by a method wherein the atomic layer epitaxial growth of III-V compound semiconductor is achieved by supplying group III raw gas and group V raw gas to a substrate alternately.

CONSTITUTION: Plateau shape structures 12a and 12b whose side walls are composed of surfaces equivalent to the face (110) are formed on an insulating GaAs (111) substrate 11. The atomic layer epitaxial growth of 1000 times for each layer is performed at 450 deg.C with GaCl and AsH₃ as a group III raw gas and a group V raw gas respectively. The thickness of a GaAs growth layer 13 obtained by slant polishing is 3300 Angstrom on a face (111) and 2000 Angstrom on a face (110). With this constitution, electrical continuity between the growth layers 13 of the adjacent plateau shape structures 12a and 12b is not found so that the complete electrical isolation between elements can be achieved.